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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,191	10/06/2000	Reginald Hunter	AMAT/3083.P7/FET/FET/DV	5577

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APPLIED MATERIALS, INC.
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SANTA CLARA, CA 95050

EXAMINER	
SMITH, ZANDRA V	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/685,191	HUNTER, REGINALD	
	Examiner	Art Unit	
	Zandra V. Smith	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13,15 and 21* is/are allowed.

6)☒ Claim(s) *1-3,5,7-12,14 and 16-20* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3-29-04,4-22-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Amendment

The amendment filed 1 June 2004 has been entered.

Information Disclosure Statement

The information disclosure statements filed 29 March 2004 and 22 April 2004 have been placed in the application file and the references considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if the "input device" of claim 18 is the same or different from the "input device" of claim 14.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by

Dishon et al. (6,166,801).

As to claim 1, Dishon discloses a system useful in photo-lithographically processing substrates, comprising:

receiving from an optical inspection systems, process data readings comprising optical signal signature information indicative of a topographical condition on a substrate; and

processing the process data reading to determine a subsequent handling step (col. 15, lines 20-30 and col. 16, line 56-col. 17, line 22).

As to claim 2, Dishon discloses everything claimed, as applied above, in addition if an unacceptable topographical condition is determined to exist the substrate is transferred to an inspection platform (col. 17, lines 20-22).

As to claim 3, Dishon discloses everything claimed, as applied above, in addition substrate defect information is obtained (col. 17, lines 1-22).

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by ***Akimoto et al. (6,004,047).***

As to **claim 1,** Akimoto discloses a system for processing photoresist, comprising:

receiving from an optical inspection systems, process data readings comprising optical signal signature information indicative of a topographical condition on a substrate (col. 9, lines 25-35); and

processing the process data reading to determine a subsequent handling step (col. 10, lines 5-10).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5 is rejected under 35 U.S.C. 102(e) as being anticipated by ***Takahashi et al. (5,672,091).***

As to **claim 5,** Takahashi discloses a polishing apparatus having endpoint detection device, comprising:

receiving process data readings from at least one optical inspection system (3 or 4) wherein the data reading s comprise optical signal signature information indicative of a topographical condition of the substrate surface inspected by the optical inspection device (col. 4, lines 11-19); and

processing the process data reading to determine a process termination (endpoint) step (col. 4, lines 19-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-12, 14, and 16-20 are rejected under 35 U.S.C. lO3(a) as being unpatentable over ***Fredriksen et al. (6,021,380)*** in view of ***Dishon et al. (6,166,800).***

As to **claims 7 and 12,** Fredriksen discloses an automatic wafer sorter/prober with extended optical inspection, comprising:

a plurality of optical inspection systems, to perform optical inspection (17 and 19, col. 5, lines 7-12 and col. 6, lines 57-60);

an inspection platform to perform optical inspection (col. 5, lines 15-25); and

a controller to process optical signal information indicative of a topographical condition on a substrate and in response causes execution of transferring the substrate to the platform for further optical inspection (col. 4, lines 63-68 and col. 6, line 55-col. 7, line 9). Fredriksen differs from the claimed invention in that different degrees of resolution for the inspection are not provided, however to do so is well known as taught by Dishon discloses a processing system that includes fine and coarse defect inspection (col. 17, line 5-22). Discloses everything claimed, as applied above, in addition to use fine and coarse inspection since the use of coarse inspection give an indication the presence and general location of a defect and fine inspection will allow for the identification and classification of the defect.

As to **claims 8 and 16**, Fredriksen and Dishon disclose everything claimed, as applied above, in addition the optical inspection systems are disposed on a processing system along a transfer path of the substrate (see fig. 1).

As to **claims 9 and 17**, Fredriksen and Dishon discloses everything claimed, as applied above, in addition the receiver is a CCD (col. 3, line 36).

As to claims **10 and 18**, Fredriksen and Dishon disclose everything claimed, as applied above, with the exception of an input unit, however since the system operates with respect to predetermined parameters and a control unit operates the system in response to the predetermined parameters (col. 5, lines 45-55), it would have been obvious to one having ordinary skill in the art at the time of invention to include an input unit to provide a means to inform the control unit of its operating parameters.

As to **claims 11 and 19,** Fredriksen and Dishon discloses everything claimed, as applied above, in addition the first substrate handling step is executed by determining whether optical

inspection data collected exceeds a predetermined threshold, and if so, determining an unacceptable process condition exists (col. 4, lines 63-68).

As to **claims 14 and 20,** Fredriksen discloses an automatic wafer sorter/prober with extended optical inspection, comprising:

a plurality of optical inspection systems, to perform optical inspection (17 and 19, col. 5, lines 7-12 and col. 6, lines 57-60);

an inspection platform to perform optical inspection (col. 5, lines 15-25); and

a controller to process optical signal information indicative of a topographical condition on a substrate and in response causes execution of transferring the substrate to the platform for further optical inspection (col. 4, lines 63-68 and col. 6, line 55-col. 7, line 9). Fredriksen differs from the claimed invention in that different degrees of resolution for the inspection are not provided, however to do so is well known as taught by Dishon discloses a processing system that includes fine and coarse defect inspection (col. 17, line 5-22). Discloses everything claimed, as applied above, in addition to use fine and coarse inspection since the use of coarse inspection give an indication the presence and general location of a defect and fine inspection will allow for the identification and classification of the defect. Additionally, Fredriksen and Dishon fail to disclose an input unit, however since the system operates with respect to predetermined parameters and a control unit operates the system in response to the predetermined parameters (col. 5, lines 45-55), it would have been obvious to one having ordinary skill in the art at the time of invention to include an input unit to provide a means to inform the control unit of its operating parameters.

Allowable Subject Matter

Claims 13, 15, and 21 are allowed.

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious, a processing system comprising determining the location of a substrate in the processing system to determine a routing sequence for the substrate if it is determined that an unacceptable topographical condition exists on the substrate (claim 6), a system shut-down if an unacceptable substrate process condition exists (claim 13), a termination step (claim 15), or a cluster tool that includes disposing one of the plurality of inspection systems on the process chamber and another one of the plurality on the transfer chamber (claim 21), in combination with the rest of the limitations of claim.

Response to Arguments

Applicant's arguments filed 01 June 2004 have been fully considered but they are not persuasive. Applicant's representative argues that Dishon fails to provide determining whether process data readings from an optical inspection system exceed a predetermined value, and if the process data readings exceed the predetermined value, determining that an unacceptable topographical condition exists on the substrate, however the examiner respectfully disagrees. Although, a specific recitation is not provided the determination of the number of defects and coordinates (col. 17, line 8) of the defects is determined in a coarse inspection and based on

thresholds (col. 17, line 22), a fine inspection may be performed. This implies that the fine inspection is performed when the number and/or coordinates of the defects are outside of a predetermined range.

Arguments with respect to the remaining claims are moot in view of new grounds of rejection.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zandra V. Smith
Primary Examiner
Art Unit 2877

August 20, 2004